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Iowa Nuclear Supply Chain Development

Task Force Meeting #5 Pre-read

Presented to the Iowa Nuclear Energy Task Force

Assessment Framework and Benchmark Findings

Several states have already established nuclear supply chain development programs and serve as models but also competitors

State Nuclear Supply Chain Ecosystem Development Benchmarking

State	Strategic Focus	Nuclear Legacy	Illustrative Actions
Tennessee	Build nuclear manufacturing and supply chain ecosystem	- Two operating nuclear plants (50% of state's power) - Clinch River site - Oak Ridge lab	$70M Nuclear Energy Supply Chain Investment Fund supporting supplier expansion, workforce programs, manufacturing attraction, and site development
Wyoming	Accelerate energy innovation and commercialization	- TerraPower demo - Uranium supply (not developed)	$155M Energy Matching Funds program leveraging private and federal capital for pilot, demonstration, and deployment projects
Texas	Accelerate advanced nuclear deployment and supply chain readiness	- Two operating plants (10% of state's power) - X-Energy / Dow project - EPC supply base	$70M Project Development and Supply Chain Reimbursement Program supporting manufacturing capacity development, supply chain readiness, licensing preparation, and fuel cycle activities as part of Texas' broader $350M Advanced Nuclear Development Fund
Kentucky	Build nuclear ecosystem and workforce readiness	- Primary U.S. uranium enrichment supply base	$8-10M initial Nuclear Energy Development Grant Program supporting siting studies, enrichment supply chain planning, workforce training, curriculum development, and community readiness initiatives

Considering both supplier companies and target market, Iowa has several potential nuclear supply chain growth opportunities…

IA Nuclear Supply Chain Growth Framework

Addressable Nuclear Plants	*Addressable companies*		
	Grow existing IA nuclear supply base	**Diversify current IA suppliers into nuclear**	**Attract new nuclear company into IA**
Duane Arnold	**Maintain 'the core':** re-establish local supply base for DA	**Growth Op:** current non-nuclear suppliers diversity into nuclear, with a focus on IA	**Growth Op:** attract a new supplier to IA to support nuclear new build / services in IA and beyond
'Wave 1' U.S. Builds[1]	**Growth Op:** current nuclear suppliers extend customer base to 2030-35 new builds	**Growth Op:** current non-nuclear suppliers diversify into nuclear (U..S. / global plants)	
IA New Builds[1]	**Growth Op:** current nuclear and non-nuclear suppliers expand sales through supplying IA plants		

1) *'Wave 1' refers generally to next first 3-5 nuclear power projects in the U.S., starting construction as early as 2028; Iowa new build assumed to be later, early 2030s.*

… where Solestiss recommends that state policies focus on three areas with high economic value relative to risk

IA Nuclear Supply Chain Growth Opportunities – *segmented for recommended focus areas*

Addressable companies

Addressable Nuclear Plants	Grow existing IA nuclear supply base	Diversify current IA suppliers into nuclear	Attract new nuclear company into IA
Duane Arnold	Critical opportunity but does not require policy intervention	Small addressable market → 2nd priority after growing national customer base	Current Gen III+ national supply constraints most likely addressed by capacity expansion (vs new entrants), potential opportunity for Gen IV but high uncertainty on 'winners' and less immediate → opportunistic / non-pro-active approach for now
'Wave 1' U.S. Builds[1]	1 Opportunity to extend foundation supply base and create long-term option value	2 Potential to alleviate national supply chain constraints and create long-term option value	
IA New Builds[1]	3 Most significant opportunity across supply chain and workforce but contingent upon new nuclear plant completion		

1st priorities for task force policies

Not immediate priority

Findings and recommendations in next pages

1) *'Wave 1' refers generally to next first 3-5 nuclear power projects in the U.S., starting construction as early as 2028; Iowa new build assumed to be later, early 2030s.*

Prepared by Solestiss

1 Extend commercial footprint of existing IA nuclear suppliers → ‘Wave 1’ plants

Opportunity Area #1: Findings & Initial Recommendations

Iowa has a small but credible foundation of existing nuclear suppliers and thus potential growth platform

1 Extend existing IA nuclear suppliers' commercial footprint → 'Wave 1' plants

- National supply chain is capacity constrained, particularly among qualified suppliers
- Near-term ("Wave 1") demand is expected to be met by scaling existing suppliers, not new entrants
- Expansion decisions are influenced by:
  - Customer demand visibility
  - State support and incentives (e.g., Tennessee, Wyoming, Texas and Kentucky have launched nuclear and advanced energy investment initiatives)
- Without targeted support, suppliers may scale in other jurisdictions

Potential next step validation:

- Further engage existing Iowa nuclear suppliers to:
  - Confirm capacity and expansion plans
  - Validate barriers to scaling (e.g., workforce, capital, certification)

At least three companies have been identified with proven capabilities and ex-Iowa project experience

1 Extend existing IA nuclear suppliers' commercial footprint → 'Wave 1' plants

Current, Iowa-located Nuclear Equipment & Service Suppliers

Paxton & Vierling Steel (Carter Lake, IA)

- Diversified supplier
- Structural steel fabrication and complex metal assemblies
- Support of large infrastructure and industrial projects
- Capabilities relevant to construction and balance-of-plant components

Nuclear Projects:

- Hanford DOE / DOD Lab
- DOD Integrated Water Treatment Unit
- Vogtle 3 & 4
- VC Summer (prospective)

Emerson – Fisher Valves (Marshalltown, IA)

- Diversified supplier
- Control valves and flow management systems
- Energy and industrial sectors
- Products applicable to nuclear and non-nuclear plant systems

Nuclear Projects:

- Pickering Nuclear Station
- Wolf Creek Nuclear Operating Corporation
- Manufactured nuclear qualified pressure transmitters in over 300 reactors and 23 countries.

Corrosion Control Services (Davenport, IA)

- Specialized in nuclear plant diaphragm seals and corrosion-resistant components
- Experience in industrial and process applications
- Relevant to fluid systems and harsh operating environments

Nuclear Projects:

- Tennessee Valley Authority – Watts Barr
- Wisconsin Electric Power Company - Point Beach
- Wolf Creek Nuclear

Solestiss recommends a demand and performance-based Nuclear Supply Chain Expansion Program

1 Extend existing IA nuclear suppliers' commercial footprint → 'Wave 1' plants

Key Actions

- Provide cost-share funding for:
  - Capacity expansion (equipment, facilities)
  - Workforce hiring and training
- Prioritize companies that:
  - Already serve nuclear customers
  - Have line of sight to near-term demand ("Wave 1")
  - Face competitive pressures from other U.S. suppliers, especially if located in a state with nuclear supply chain funding
- Tie support to:
  - Confirmed customer relationships
  - Expansion into known supply chain gaps
- Structure funding as performance-based and milestone-driven
- Informed by emerging peer-state nuclear supply chain funding programs

Rationale

- Fastest, lowest-risk path to impact
- Builds on existing nuclear-qualified capability by helping de-risk suppliers' investments
- Aligns with leading states deploying targeted supply chain funding

2

Non-nuclear suppliers diversify to serve ‘Wave 1’ U.S. nuclear new build demand

Opportunity Area #2: Findings & Initial Recommendations

The most critical nuclear power supply chain constraints are a mix of specialized equipment and labor resources

Nuclear Power Plant Supply Chain Constraints

Limited large, nuclear-grade component capacity

- Reliance on a small number of global suppliers for **heavy forgings** (key step in reactor pressure vessel)
- Especially pronounced for **ultra-large forgings** utilized for traditional, GW-scale nuclear power, e.g. Westinghouse AP1000, less so for SMR forgings
- Additionally, downstream machining steps (e.g. **machining, finishing, welding, heat treatment, and nondestructive examination**) even more constrained

Specialized workforce – nuclear specific and general mega-project

- Multi-layered labor constraints from construction through to operations
- Most notable nuclear specific gaps: **nuclear grade welders, pipefitters, electricians**, I&C technicians , and reactor operators
- In addition, there is competition for limited **project management personnel, construction supervisors, and project controls** specialists

Nuclear-qualified supplier base is thin

- Declining number of **NQA-1** and **ASME N-stamped** suppliers
- Gaps in **advanced manufacturing, I&C, and testing** capabilities
- High cost and complexity to enter nuclear supply chain
- Over-reliance on a small pool of qualified vendors

Potential opportunity for IA

Forging supply expansion most likely from handful of incumbents but **Iowa machining capacity could be leveraged**

Significant opportunity for **existing workforce** and for growth w/**training and apprenticeship programs**, but geographic flexibility will be a constraint

Potential for existing Iowa capacity to qualify/certify, requires more exploration

Iowa has strong industrial capability, but nuclear entry barriers limit national participation

2 Non-nuclear suppliers diversify to serve ‘Wave 1’ U.S. nuclear new build demand

Key Findings

- Iowa (e.g., Cedar Rapids region) has strength in:
  - Advanced manufacturing, aerospace, and defense
  - Capabilities aligned with regulated, high-spec industries
- These sectors have transferable capabilities to nuclear supply chain
- Entry into nuclear is constrained by:
  - Certification and qualification requirements
  - Cost and complexity of entry
  - Uncertain demand visibility
  - Proximity to other nuclear component manufacturing hubs (high transport costs of large machined components)
  - Lack of targeted supplier transition and qualification support compared to emerging peer-state programs (Tennessee, Texas, Wyoming, Kentucky)
- Market will not naturally convert these firms—targeted support would be required

Potential next step validation:

- Engage non-nuclear manufacturers to:
  - Assess interest in entering nuclear and capability matching
  - Identify qualification barriers and support requirements

Iowa should enable targeted entry of high-potential manufacturers into the nuclear supply chain

2 Non-nuclear suppliers diversify to serve 'Wave 1' U.S. nuclear new build demand

Key Actions

- Include cost-share funding for non-nuclear suppliers to extend into nuclear:
  - Certification (e.g., NQA-1, ASME)
  - Equipment and process upgrades
  - Workforce training
- Focus on companies with:
  - Experience in regulated industries (e.g., aerospace, defense)
  - Capabilities aligned to identified supply chain gaps
- Provide coordinated support across:
  - Industry
  - Community colleges / universities
  - State agencies
- Require a clear pathway to market:
  - Customer relationships, partnerships, or defined target segment

Rationale

- Expands Iowa's supply base in a targeted, credible way
- Focuses on high-probability entrants vs. broad recruitment
- Reflects leading state approaches combining supplier funding, workforce investment, commercialization support, ecosystem coordination and nuclear readiness initiatives.

3

Supply base growth through Iowa nuclear plant expansion

Opportunity Area #3: Findings & Initial Recommendations

In-state nuclear power expansion is the most direct and impactful path towards supply chain development

3 Supply base growth through Iowa nuclear plant expansion

Key Findings and Recommendations

- Duane Arnold contributes ~1,200 jobs and $350M in annual economic output to Iowa[1]
  - Plant operations
  - Local supply chain
- New nuclear power capacity additions in Iowa would be not only the most significant direct economic impact opportunity (through plant construction and operations) but also strengthen the local supply chain
  - Expand customer base for current national suppliers
  - Build new services and other suppliers in region of prospective new plant (analogous to Linn County currently)
  - Strengthens potential to attract new suppliers to the state

Rationale

- Highest potential economic and supply chain impact – although, longer time frame for impact

Duane Arnold Supply Chain:
Findings & Initial Recommendations

In-state supply chain for Duane Arnold is largely generalist labor services which is currently re-mobilizing

Re-establish local supply base for Duane Arnold

- Duane Arnold supply chain reactivation is being led by NextEra
  - Procurement strategy focused on existing qualified suppliers (local and national)
  - Local participation is structurally limited to labor, construction equipment, and general services
- Local supplier presence is limited in nationally constrained segments, e.g. nuclear-grade equipment and safety-related systems (high barriers to entry)
  - Gaps historically filled out-of-state
  - Engineering, NDT, specialized services sourced from regional hubs (e.g., Chicago, Minnesota)
- NextEra is not opposed to using new nuclear suppliers entering Iowa supply base if requirements can be met, however they:
  - Leverage a mature, nation-wide supply chain for Duane Arnold and their wider nuclear fleet
  - Have limited visibility into local supply chain
  - Expect local suppliers will be either unqualified or raise costs (lack scale)
- Linn County confirmed no clear view of historic supplier base or gaps
- The primary local economic development lever is workforce, not supply chain

Solestiss recommends a non-interventionist approach to Duane Arnold-specific supply chain mobilization

Re-establish local supply base for Duane Arnold

Implications

- Supply chain will reactivate organically under NextEra leadership
- Local supply chain expansion opportunities are:
  - Limited in scope
  - Not dependent on state intervention
- Forcing localization could:
  - Increase cost
  - Introduce execution risk

Recommendation

- Do not create Duane Arnold-specific supply chain programs
- Instead, focus state effort on:
  - Supporting workforce readiness (critical path)
  - Enabling broader, scalable supply chain opportunities (Areas #2 & #3)